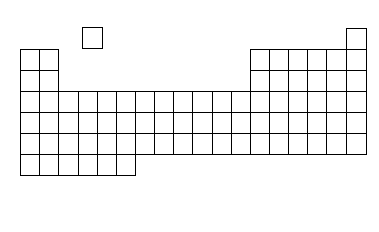
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| periodic table | **Arranging Elements** | **شعار-القسم** |
| **Worksheet-3** |

1. **Properties of the periodic table:**

`

1. Complete the following statements:
2. A periodic table is a list of elements arranged in order of **their increasing atomic number.**
3. A period is a **horizontal row** of elements.
4. A group is a **vertical column** of elements. Group 0 is sometimes called **group VIII.**
5. Locate, in the following periodic table, the positions of: period1, period3, group I, group III and group 0:



group I

group I

group III

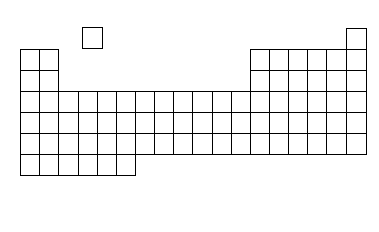
group 0

period 1

period 3

1. On the following simplified periodic table show where **metals**, **non-metals**

and **semimetals** are grouped .



1. The main groups of elements:

**a**. Elements of **group I** are called **Alkali metals.**

**b.** Elements of **group II** are called **Alkaline earth metals.**

**c.** Elements of **group VII** are **called Halogens.**

**d.** Elements of **group VIII** are **called Noble gases.**

1. **Importance of the periodic table of elements:**
2. The periodic table helps **to predict the chemical properties of an element based on its location on the table.**
3. All elements in the same column **have the same chemical properties**.
4. Atomic number increases **as you move across a row or period from left to right.**.
5. The properties of elements **change gradually along the rows**.
6. **Chemical properties of the some elements:**
7. **Chemical properties of the Alkali Metals ( Group I )**:
8. How do alkali metals react with water?

All alkali metals react with cold water to form **hydrogen** and an **alkali** ( **metal hydroxide**).

|  |
| --- |
| **Li** |
| **Na** |
| **K** |
| **Rb** |
| **Cs** |
| **Fr** |

The word equation of such reaction is given by:

**alkali metal** + **water** 🡪 **metal hydroxide** + **hydrogen**

Examples:

**Lithium** + **water** 🡪 **lithium hydroxide** + **hydrogen**

**Sodium** + **water** 🡪 **sodium hydroxide** + **hydrogen**

1. Do all alkali metals have the same reactivity?

**The reactivity increases on going down Group I.**

|  |
| --- |
| **F** |
| **C*l*** |
| **Br** |
| **I** |
| **At** |

1. **Chemical properties of the Halogens( Group VII )**:
2. **Halogens are reactive non-metals**.
3. Halogens react with **most metals** to form **salts called halides**.

**Metal** + **Halogen** 🡪  **Metal Halide**

Examples:

**Sodium** **+** **Chlorine** 🡪 **Sodium** **Chloride**

1. Do all Halogens have the same reactivity?

**The reactivity decreases on going down Group VII.**

|  |
| --- |
| **He** |
| **Ne** |
| **Ar** |
| **Kr** |
| **Xe** |
| **Rn** |

1. **Chemical properties of the Nobel gases ( Group 0 )**
2. **Noble gases are all colorless at room temperature.**
3. **Noble gases are all unreactive.**
4. **Noble gases are all monatomic elements.**
5. Metals, Nonmetals and Metalloids.
6. Some properties of metals:

* **Metals are material that has a characteristic luster(or shine) and they are a good conductors of heat and electricity.**
* **All metals are solids at room temperature except mercury is liquid.**
* **Metals are malleable and ductile.**

1. Some properties of nonmetals:

* **The nonmetals are poor conductors of heat and electricity.**
* **Solid nonmetals are brittle and not have metallic luster.**

1. Some properties of metalloids:

**Metalloids have some properties of metals and some properties.**